

REMARKS

In this Amendment, Applicants amend claims 1 and 6 to improve form and to more appropriately define the present invention, and amend claims 5, 8, and 12 to improve form only, and not for reasons related to patentability. Applicants also add new claims 86 – 96, which are based objected to claims 8 – 14. Upon entry of this Amendment, claims 1 – 96 remain pending, with claims 1 – 14 and 86 – 96 under current examination, and claims 15 – 85 withdrawn from consideration as drawn to a nonelected invention.

Regarding the Office Action:

In the Office Action, the Examiner rejected claims 1 – 7 under 35 U.S.C. § 103(a) as unpatentable over Shirakawa, et al. (U.S. Patent No. 6,644,964) in view of Kitano, et al. (U.S. Patent No. 5,434,644), and objected to claims 8 – 14 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants appreciate the Examiner's thorough examination of this application, especially the detailed citations which aided Applicants in reviewing the Examiner's comments, and the indication that claims 8 – 14 are drawn to allowable subject matter. Applicants, however, respectfully traverse the objection and rejection, as detailed above, for the following reasons.

Regarding the Amendments to Claims 1, 5, 6, 8, and 12:

Applicants amend claims 1 and 6 to improve form and to more appropriately define the present invention, and amend claims 5, 8, and 12 to improve form only, and not for reasons related to patentability.

Specifically, Applicants amended claims 1 and 6 to correct grammar and provide proper antecedent basis. In addition, Applicants amended claims 1 and 6 to more appropriately define the present invention, by reciting "...and the second space connected with an outside of said chamber through a first opening and a second opening formed in sides of said chamber" in claim 1, and by rewording the element "a surface of the adsorption plate which faces the substrate to be processed adsorbing a substance evaporated from the coating film" in claim 6. Support for these amendments may be found, among other places, in Applicants' specification on p. 16, lines 11 – 15, on p. 24, lines 24 – 26, and on p. 25, lines 8 – 10.

Furthermore, Applicants amended claims 5, 8, and 12 to correct grammar and improve form only, for example, by adding the word "the" between "of conditions" and moving the word "so" between "adjusted as" in claim 5, by adding the word "for" between "function controlling" in claim 8, and by adding the word "for" between "generator generating" in claim 12.

Therefore, Applicants submit that the amendments contain no new matter, in accordance with the requirements of 37 C.F.R. § 1.121(f), and respectfully remind the Examiner that "[a]mendments to an application which are supported in the original description are NOT new matter." M.P.E.P. § 2163.07, emphasis in original.

Regarding the Objection to Claims 8 – 14, and New Claims 86 - 96:

The Examiner objected to claims 8 – 14 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response, Applicants added new claims 86 – 96.

Specifically, Applicants added new claims 90 – 96 to rewrite objected to claim 8 into independent form. New independent claim 90 corresponds to claim 8; new claim 91 corresponds

to claim 9; new claim 92 corresponds to claim 10; new claim 93 corresponds to claim 11; new independent claim 94 corresponds to claim 12; new claim 95 corresponds to claim 13; and new claim 96 corresponds to claim 14.

Furthermore, Applicants added new claims 86 – 89 to protect additional aspects of the present invention. Support for these amendments may be found, among other places, in Applicants' specification on p. 15, line 23 to p. 16, line 25; p. 20, line 10 to p. 21, line 9; and p. 24, lines 24 – 26.

Therefore, Applicants submit that the new claims do not contain new matter. In addition, Applicants submit that new claims 86 – 96 are allowable, at least partially because new claims 90 – 96 were added to overcome the Examiner's objection to claims 8 – 14 (claims 8 – 14 being indicated as drawn to allowable subject matter), and since new claims 86 – 89 serve to further define base claims 1 and 6 (which are deemed allowable for the reasons presented below).

Applicants submit that these amendments should render the application in condition for allowance after consideration of the remarks that follow, and should not place any burden on the Examiner insofar as raising new issues or requiring further searches of the art to reconsider the object to, rejected, or new, claims.

Regarding the Rejection of Claims 1 – 7 under 35 U.S.C. § 103(a):

Applicants respectfully traverse the rejection of claims 1 – 7 under 35 U.S.C. § 103(a) as unpatentable over Shirakawa in view of Kitano. Applicants respectfully disagree with the Examiner's arguments and conclusions, and respectfully submit that a *prima facie* case of obviousness has not been established.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim

elements. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Third, there must be a reasonable expectation of success. *See* M.P.E.P. § 2143.

The Examiner has not shown (1) that all the elements of Applicants' claims are met in the cited references, (2) that there is any suggestion or motivation to modify the cited references to result in the claimed invention, and (3) that there would be any reasonable expectation of success from so doing.

1. *Prior Art Reference(s) Must Teach or Suggest All the Claim Elements*

Applicants respectfully point out that the first requirement for establishing a *prima facie* case of obviousness has not been established: namely, whether Shirakawa, taken alone or in combination with Kitano, teaches or suggests each and every element of Applicants' claimed invention. This is evidenced, not only by the Examiner's admission of the deficiencies pointed out in Shirakawa (Office Action, p. 3 "Shirakawa does not disclose that the gas stream emanating from the partition member (adsorption plate, plate portion) discharges the substances evaporated from the film (along with the gas) through the exhaust port"), but also from the arguments that follow.

To begin, Applicants' independent claims 1 and 6, as amended, recite, among other things:

"a partition member arranged in said chamber so as to face the support surface, said partition member partitioning the inner space into first and second spaces and having a plurality of pores allowing the first and second spaces to connect with each other, the support surface being set in the first space, and the second space connected with an outside of said chamber through a first opening

and a second opening formed in sides of said chamber; and an air stream formation mechanism forming an air stream in the second space in order to discharge a substance evaporated from the coating film” (claim 1), and

“a heating plate for heating a substrate to be processed, said heating plate having a support surface that supports the substrate to be processed with a coating film in said chamber; and an adsorption plate arranged in said chamber so as to face the support surface, a surface of the adsorption plate which faces the substrate to be processed adsorbing a substance evaporated from the coating film” (claim 6).

Applicants submit that Shirakawa does not teach or suggest at least these elements of Applicants’ independent claims 1 and 6. In contrast to the present claimed invention, Shirakawa teaches a portion among the space in the heat processing apparatus partitioned by the second plate portion, in which no substrate is provided, and in which there is only a supply port 242. Furthermore, Shirakawa also teaches a portion among the space in the heat processing apparatus, in which a substrate is provided, and in which there is only an exhaust port 243. As such, Shirakawa teaches that the N₂ gas introduced from supply port 241 passes through the space below plate portion 221 to be discharged from exhaust port 243. In this way, Shirakawa teaches an air stream formed in a space below plate portion 221. Shirakawa’s supply port 242 is provided in order to supply an N₂ gas to the space below second plate portion 221. For this reason, in the space below the second plate portion 221, an air stream may enter into the heat processing apparatus from outside without passing through the space below second plate portion 221 and without being discharged to the outside of the space in the heat processing apparatus. *See* Shirakawa, Figs. 8A and 8B, and cols. 9 and 10. Moreover, Shirakawa teaches that when heating wafer W, supply ports 240 and 242 are stopped (Shirakawa, col. 10, lines 4 – 6), and

when cooling wafer W, supply port 241 is stopped (Shirakawa, col. 10, lines 20 – 22). *See also* Shirakawa, Figs. 8A and 8B.

It is therefore clear that Shirakawa does not teach or suggest Applicants' claimed "second space connected with an outside of said chamber through a first opening *and a second opening formed in sides of said chamber*; and an air stream formation mechanism forming an air stream in the second space in order to discharge a substance evaporated from the coating film" (italics added). Shirakawa's second plate portion 221 only has a first opening via supply port 242 and does not have a second opening formed in sides of the chamber. Thus, Shirakawa also cannot teach or suggest "an air stream formation mechanism forming an air stream in the second space in order to discharge a substance evaporated from the coating film," according to Applicants' independent claim 1.

Likewise, Shirakawa does not teach or suggest Applicants' claimed "an adsorption plate arranged in said chamber so as to face the support surface, a surface of the adsorption plate which faces the substrate to be processed adsorbing a substance evaporated from the coating film" (independent claim 6). This is because Shirakawa's second plate portion 221 is provided to form a passageway through which N₂ gas from supply port 242 flows into the space below second plate portion 221. In other words, second plate portion 221 does not "[adsorb] a substance evaporated from the coating film," as in Applicants' independent claim 6.

In addition, Shirakawa's Fig. 8A (and corresponding description) teaches that even if an impurity is generated from wafer W, the impurity is discharged from exhaust port 243 by means of the air stream flowing over wafer W, parallel to wafer W, and toward exhaust port 243. Thus, Shirakawa does not teach or suggest Applicants' claimed "adsorption plate ... adsorbing a substance evaporated from the coating film" (independent claim 6).

Turning to Kitano, Applicants acknowledge that the Examiner cited Kitano to allegedly teach “the use of a filter unit (partition member) in a processing station” (Office Action, p. 3). Nevertheless, Kitano still does not cure the deficiencies of Shirakawa pointed out above. Kitano’s Figs. 2 and 6, and corresponding description, show filter unit 70a through which air circulates on the top portion of the interface section. *See* Kitano, col. 4, lines 26 – 40. As such, since the air stream that circulates inside the apparatus passes through filter unit 70a, filter unit 70a adsorbs the impurity inside the air stream. In Kitano’s apparatus, since the apparatus does not include a structure where a space in which a substrate to be processed is provided and a space in which an air stream is formed are partitioned, it is impossible to prevent the impurity contained in an air stream from being attached to the substrate, before the air stream passes through filter unit 70a. Therefore, Kitano’s apparatus does not teach or suggest the following claimed elements:

“partition member arranged in said chamber so as to face the support surface, said partition member partitioning the inner space into first and second spaces and having a plurality of pores allowing the first and second spaces to connect with each other, the support surface being set in the first space, and the second space connected with an outside of said chamber through a first opening and a second opening formed in sides of said chamber; and an air stream formation mechanism forming an air stream in the second space in order to discharge a substance evaporated from the coating film” (claim 1), or

“a heating plate for heating a substrate to be processed, said heating plate having a support surface that supports the substrate to be processed with a coating film in said chamber; and an adsorption plate arranged in said chamber so as to face the support surface, a surface of the adsorption plate which faces the substrate to be processed adsorbing a substance evaporated from the coating film” (claim 6).

Applicants therefore submit that Kitano's deficiencies are over and above the deficiencies of Shirakawa, such that either reference, taken alone or in combination with the other, fails to teach or suggest all the elements of Applicants' independent claims 1 and 6.

Therefore, the Examiner's application of Shirakawa and Kitano as references does not satisfy the tenets of a proper 35 U.S.C. § 103(a) rejection, and the Examiner has not met an essential criterion for establishing a *prima facie* case of obviousness, wherein "the prior art reference (or references when combined) must teach or suggest all the claim limitations." See M.P.E.P. §§ 2142, 2143, and 2143.03.

2. *Lack of Suggestion or Motivation to Modify or Combine Reference Teachings for Prima Facie Obviousness*

M.P.E.P. § 2141 sets forth some "Basic Considerations which Apply to Obviousness Rejections," as follows:

"When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) *The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;*
- (C) *The references must be viewed without the benefit of impermissible hindsight vision* afforded by the claimed invention; and
- (D) *Reasonable expectation of success is the standard* with which obviousness is determined."

Applicants have already established that the cited references do not teach or suggest all the elements of Applicants' independent claims 1 and 6, and therefore now supplement those arguments to further demonstrate lack of obviousness, as follows. The Examiner alleged that "it would be obvious to a skilled artisan to modify Shirakawa by employing the filter unit suggested by Kitano ... [to enable] developments of film patterns with high accuracy" (Office Action, p. 3), yet the Examiner provides no reasoning or basis to support this allegation.

The M.P.E.P. sets forth:

“Obviousness can only be established by combining or modifying the teaching of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” “[I]t is necessary to ascertain whether or not the reference teaching would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” M.P.E.P. § 2143.01, emphasis added.

Applicants submit that one skilled in the art could only arrive at the present claimed invention by consulting Applicants’ disclosure, however, “[t]he teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on [A]pplicant’s disclosure.” M.P.E.P. § 2142 (internal citations omitted). Accordingly, the teachings of Shirakawa and Kitano, taken alone or in combination, still do not provide the requisite motivation to one of ordinary skill in the art to facilitate their combination, *from within the references themselves*, implicitly or otherwise. Applicants also note that one of ordinary skill in the art must have this motivation or reason *without the benefit of Applicants’ specification* to modify the references, notwithstanding the fact that Kitano fails to cure Shirakawa’s deficiencies.

Applicants therefore submit that one of ordinary skill in the art would not have been motivated to combine Shirakawa with Kitano, as there is nothing in particular to gain from such a combination, as what is obtained still does not lead one of ordinary skill in the art at the time the invention was made to achieve the present claimed invention. As noted above, even if

combinable in the manner proposed by the Examiner, the resulting combination of references would fail to teach or suggest each element of Applicants' independent claims 1 and 6.

Applicants therefore respectfully remind the Examiner that "[t]he initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done." M.P.E.P. § 2142. The prior art references themselves must provide the motivation to combine, and the presently applied references clearly fail to do so, therefore failing to provide some suggestion of the desirability of doing what Applicants have done.

As already demonstrated, the combination of these references as applied by the Examiner *a priori* fails to establish obviousness of the claimed invention. Furthermore, Applicants have pointed out deficiencies in the cited prior art that render nugatory any indication that the cited references would give any motivation or reason to one of ordinary skill in the art to modify them *without the benefits of Applicants' specification*.

Therefore, the Examiner's application of Shirakawa and Kitano still does not establish that there would have been the requisite suggestion or motivation to modify either of them: "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." M.P.E.P. § 2143.01, citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis in original).

In light of the above-described shortcomings of Shirakawa and Kitano, Applicants respectfully submit that the Examiner points to no evidence supporting the notion that one of ordinary skill in the art, having these references before him/her, would have been motivated to modify them to produce Applicants' present claimed invention. Also, for at least these reasons,

the Examiner fails to meet the required burden for establishing a *prima facie* case of obviousness.

3. *Lack of Reasonable Expectation of Success for Prima Facie Obviousness*

As evidenced from previous arguments regarding the cited references, Applicants also submit that there would be no reasonable expectation of success to be derived from modifying or combining the cited references, as this would diverge from the present claimed invention, and would serve to compound the respective deficiencies of each applied reference. Accordingly, the Examiner's reliance on the cited references is not sufficient to establish *prima facie* obviousness.

Since Applicants have already demonstrated the deficiencies in the cited references and that they do not provide any suggestion or motivation to produce the present claimed invention, there can be no reasonable expectation of success expected by one of ordinary skill in the art when combining them.

In summary, the Examiner has not met the required criteria for establishing a *prima facie* case of obviousness. Namely, Applicants have demonstrated above that the Examiner: (a) has not shown that all recitations of Applicants' claimed invention are taught or suggested by Shirakawa and Kitano; (b) has not shown any requisite suggestion or motivation to modify Shirakawa and Kitano to produce Applicants' claimed invention; and (c) has not shown there would be any reasonable expectation of success from modifying Shirakawa and Kitano in order to produce the present claimed invention. Applicants' independent claims 1 and 6 therefore are allowable over the Examiner's proposed combination of references.

Finally, regarding dependent claims 2 – 5 and 7, Applicants note that the M.P.E.P. sets forth that “[i]f an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.” M.P.E.P. § 2143.03. Therefore, Applicants submit that

dependent claims 2 – 5 and 7 are also allowable at least by virtue of their respective dependence from allowable base claims 1 and 6.

Therefore, Applicants respectfully request that the Examiner withdraw the improper 35 U.S.C. § 103(a) rejection of claims 1 – 7.

Conclusion:

In view of the foregoing, Applicants request reconsideration of the application and submit that the objection and rejection detailed above should be withdrawn. Applicants submit that the pending claims are in condition for allowance, and request a favorable action.

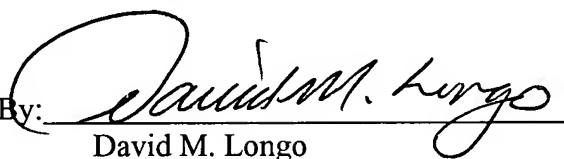
Should the Examiner continue to dispute the patentability of the claims after consideration of this Amendment, Applicants encourage the Examiner to contact Applicants' undersigned representative by telephone to discuss any remaining issues or to resolve any misunderstandings. Applicants' undersigned representative would welcome the opportunity to discuss the merits of the present invention with the Examiner if telephone communication will aid in advancing prosecution of the present application.

Please grant any extensions of time under 37 C.F.R. § 1.136 required in entering this response. If there are any fees due under 37 C.F.R. § 1.16 or 1.17, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: June 29, 2004

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